Space Weather Forecast

Issued on Saturday, 08 April 2023 at 13:13 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of Moderate flares (R1-R2 Minor-Moderate radio blackouts) throughout.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Moderate with one Moderate-flare observed from the moderately sized sunspot region in the southeast disc. Slow growth is evident in this region, with increasing magnetic complexity due to this ongoing development of small spots. This is one of two sunspots on the disc with the other region a simpler and stable spot now approaching the southwest horizon. No Earth-directed coronal mass ejections (CMEs) have been observed in available imagery.

Solar Wind / Geomagnetic Activity: Solar winds have eased to be at background levels, below 400 km/s. The total magnetic field strength has been weak throughout, with the north-south component only weakly varying. Geomagnetic activity has been Quiet (Kp0-2).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) was at background levels, with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Low to Moderate activity is expected, with an ongoing chance of M-flares (R1-R2 Radio blackouts) from the sunspot region in the southwest disc.

Solar Wind / Geomagnetic Activity: There are no Earth-directed CMEs. The CME observed on 07 Apr was assessed as missing, with only a very small chance of a weak glancing interaction. Current background slow-winds are expected to persist until later on day 3 or day 4 (10-11 April), when the arrival of faster solar winds from a coronal hole is expected. However, this is likely to bring only a relatively muted enhancement to conditions. Geomagnetic activity is expected to be mainly Quiet days 1-2 (8-9 Apr), with a chance of rising to Unsettled with Active periods from day 3 (10 Apr) but more likely on day 4 (11 Apr).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is expected to remain at background levels, with no solar radiation storms occurring.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	1	5	10
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	40	40	40	40
Very Active	R3 to R5 X	No	5	5	5	5

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	5	5
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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